

Patents
Amendment and Response to First Substantive Office Action
Patent Application No.: 10/767,144

CLAIMS

1. (Canceled) A vibration absorber, comprising:
a pair of switching elements connected in parallel between a base mass and an absorber mass to provide a magnetic flux path around the base mass, one of the pair of switching elements, the absorber mass, and the other of the pair of switching elements;
the base mass being attachable to a vibration device to be controlled; and
a magnetic field source for inducing a magnetic flux in the magnetic flux path,
whereby the magnetic flux causes an increase in stiffness in each of the pair of switching elements.

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2. (Previously Added) A vibration absorber for absorbing vibrations over a range of frequencies from a vibrating device, comprising:

a base mass for attachment to the vibrating device;

an absorber mass;

at least an element connected between the base mass and the absorber mass;

a magnetic flux path through the base mass, the absorber mass, and the element for conducting a magnetic flux;

the magnetic flux being changeable in response to a change in frequency from the vibrating device; and

the element being switchable in response to a change of the magnetic flux in the magnetic flux path,

whereby the vibrations over the range of frequencies from the vibrating device may be absorbed by the switchability of the element in response to the changeability of the magnetic flux in the magnetic flux path.

3. (Previously Added) The vibration absorber of Claim 2, wherein the element comprises a pair of elements.

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4. (Currently Amended) ~~The vibration absorber of Claim 2,~~ A vibration absorber for absorbing vibrations over a range of frequencies from a vibrating device, comprising:

a base for attachment to the vibrating device;

an absorber;

at least an element connected between the base and the absorber, wherein the element comprises a substance mixed with magnetically-conducting particles that are unable to move freely;

a magnetic flux path through the base, the absorber, and the element for conducting a magnetic flux;

the magnetic flux being changeable in response to a change in frequency from the vibrating device; and

the element being switchable in response to a change of the magnetic flux.

5. (Currently Amended) The vibration absorber of Claim 2 4, wherein the ~~element~~ substance comprises an elastomeric substance mixed with cured magnetically-conducting particles ~~that has been cured~~ so the magnetically-conducting parties are unable to move freely.

6. (Previously Added) The vibration absorber of Claim 5 wherein the elastomeric substance comprises a magnetorheological (MR) elastomer.

7. (Previously Added) The vibration absorber of Claim 2, wherein the base mass and/or the absorber mass are relatively rigid.

8. (Previously Added) The vibration absorber of Claim 2, wherein the base mass and/or the absorber mass comprise magnets.

9. (Previously Added) The vibration absorber of Claim 2, wherein the magnetic field source comprises a coil of current-bearing wire encircling the base mass and/or the absorber mass.

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10. (Previously Added) The vibration absorber of Claim 2, wherein the base mass and/or the absorber mass comprises iron or low carbon steel.

11. (Previously Added) The vibration absorber of Claim 2, wherein the element is not geometrically constrained.

12. (Previously Added) The vibration absorber of Claim 2, wherein the base mass and/or the absorber mass comprises a magnet.

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13. (Currently Amended) ~~The vibration absorber of Claim 2;~~ A vibration absorber for absorbing vibrations over a range of frequencies from a vibrating device, comprising:

a base for attachment to the vibrating device;

an absorber;

at least an element connected between the base and the absorber;

a magnetic flux path through the base, the absorber, and the element for conducting a magnetic flux;

the magnetic flux being changeable in response to a change in frequency from the vibrating device; and

the element being switchable in response to a change of the magnetic flux in the magnetic flux path, and wherein a stiffness change in the element is directly proportional to the magnetic flux that runs through the element.

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14. (Currently Amended) A method to absorb vibrations of a specific frequency from a vibrating device, comprising:

attaching a vibration absorber to the vibrating device;

applying a magnetic field to the vibration absorber to induce a magnetic flux in the vibration absorber; and

causing the vibration absorber to proportionally in stiffness change in response to inducement of the magnetic flux so that the vibration absorber absorbs the vibrations of the specific frequency from the vibrating device.

15. (Previously Added) The method of Claim 14, wherein causing the vibration absorber to change in response to the inducement of the magnetic flux comprises causing at least an element of the vibration absorber to change in static deflection length in response to the inducement of the magnetic flux so that the vibration absorber absorbs the vibrations of the specific frequency from the vibrating device.

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16. (Previously Added) A method to absorb vibrations from a vibrating device over a range of frequencies, comprising:

attaching a vibration absorber to the vibrating device;

with respect to absorbing vibrations from the vibrating device at a specific frequency in the range of frequencies, inducing a specific magnetic flux in the vibration absorber;

causing the vibration absorber to change in response to inducement of the specific magnetic flux so that the vibration absorber absorbs the vibrations at the specific frequency;

in response to detection of a change in frequency of the vibrations from the vibrating device, inducing a magnetic flux correlated to the changed frequency in the vibration absorber; and

causing the vibration absorber to change in response to the inducement of the magnetic flux correlated to the changed frequency so that the vibration absorber absorbs the vibrations at the changed frequency.

17. (Previously Added) The method of Claim 16, wherein causing the vibration absorber to change in response to inducement of the specific magnetic flux comprises causing at least an element of the vibration absorber to change in static deflection length in response to the inducement of the specific magnetic flux so that the vibration absorber absorbs the vibrations at the specific frequency.

18. (Previously Added) The method of Claim 16, wherein causing the vibration absorber to change in response to the inducement of the magnetic flux correlated to the changed frequency comprises causing at least an element of the vibration absorber to change in static deflection length in response to the inducement of the magnetic flux correlated to the changed frequency so that the vibration absorber absorbs the vibrations at the changed frequency.